Pingston Hydro Project Tunnel Plug Construction

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Abstract:  
The Pingston Hydro Project is a 45 MW hydropower project developed by private sector companies. The project involves 3.5 km of low and high pressure tunnels and a 450 m shaft. The tunnels are at internal pressures of up to 480 m head, and the gross head at the powerhouse is 590 m, making the head at this plant one of the highest in North America. The paper will discuss the design and construction of two tunnel plugs, one under a static head of 480m. Items which will be addressed in the paper include an extensive in-situ stress measurement program, plug construction, grouting and performance during operation.

Keywords: strong highly anisotropic metamorphic rocks; hydrojacking testing; testing locations and sequence; hydrojacking testing results; hydrofracturing and impression packer work in lower tunnel; interpretation of stress measurements in a regional context; permeability testing; selection of lower and upper tunnel plug locations; plug design and construction; grouting; performance during operation.